Science Update

Digital Image Gallery on the World Wide Web

Photography editors and others can download high-quality digital images of farm, food, environmental, and scientific subjects from ARS' new online service. The ARS Image Gallery holds hundreds of photos, along with credits and captions. Each image can be downloaded in three sizes: thumbnail, in-line size, and full screen. Many of the photos produced for *Agricultural Research* magazine are already available in the gallery, and more are added each month. The address is http://www.ars.usda.gov/is/graphics/photos. Media outlets may phone or e-mail for higher resolution digital files or duplicate transparencies. *John Kucharski, Photo Unit, USDA-ARS Information Staff, Greenbelt, Maryland, phone (301) 344-2002, e-mail arsphoto@asrr.arsusda.gov*

New Roach Allergen Found

Scientists with ARS and cooperating institutions have isolated a high-molecular-weight cockroach allergen. Its discovery could help medical researchers devise improved diagnostic test kits for people allergic to the pests. In asthmatics, roach allergies are second only to those from dust mites. The new roach allergen is made of proteins shed in roach shells and other body parts. It is the largest roach allergen to be identified. The discovery came through a long-term joint project of ARS, Arkansas Children's Hospital Research Institute (ACHRI), and the U.S. Food and Drug Administration. ARS scientists provided roach biological materials to ACHRI and FDA researchers, who isolated and cloned the protein's genetic code. In tests by ACHRI, 17 of 22 people known to be sensitive to roach allergens were sensitive to the newly identified one. ARS scientists are developing a kit for determining distribution of roach allergens in dwellings. The cooperating scientists are working with the private sector to find ways to denature or eliminate the allergens. *Richard J. Brenner, USDA-ARS Center for Medical, Agricultural, and Veterinary Entomology Research, Gainesville, Florida, phone (352) 374-5903.*

Shining a Brighter Light on Cotton Quality

Light waves could soon be a new tool for reducing the cotton industry's $200-million-a-year losses from poorly dyed fabric. A standard method, HVI, or high-volume instrumentation, can measure cotton fiber's length, strength, and natural color. But the industry has no quick, reliable way to measure bulk maturity, a key trait determining how well fabric will take dye. Typically, fabric makers discover dyeing imperfections too late; they have to sell the cloth at a loss. Now, ARS researchers have refined near-infrared spectroscopy, or NIR, as a way to supplement HVI and predict dyeing qualities. NIR uses light wavelengths humans can't see to detect equally invisible qualities such as thickness of fiber cell walls. From NIR data, a computer-run equation calculates dyeability and bulk maturity. Earlier NIR attempts were too slow and not accurate enough. But ARS scientists say the refined approach, with less than 2 percent error in tests, makes NIR ready for a fresh look by industry. One key advance is to apply NIR on a much larger fabric sample—5 inches in diameter—instead of on a sample the size of a quarter. Plus, the spectrophotometer now reads a sample in only 1 second, instead of 30. *Joe Montalvo, USDA-ARS Fiber Physics and Biochemistry Research Unit, Southern Regional Research Center, New Orleans, Louisiana, phone (504) 286-4249.*

Prodigal Wasp Gets a New Chance Against Gypsy Moth

A discovery in a Maryland woodlot has renewed scientists' efforts to see if a wasp from India can help stem gypsy moths. Originally from Europe, the moths attack trees in a region stretching from New England west to Michigan and south to North Carolina. But ARS scientists have reared several thousand *Rogas indiscretus* wasps, offspring of a few hundred collected last year in India. Colleagues at USDA's Forest Service and universities plan to release *Rogas* wasps this May or June in several states. The last *Rogas* releases were during the period 1968 to 1977. But scientists found no offspring until 1994—the last year of a 20-year survey—when ARS entomologists in Maryland found nine *Rogas* cocoons. The honey-colored adult wasp is about one-quarter inch long. After the female deposits an egg in a gypsy moth caterpillar, a wormlike wasp larva develops and eats the pest's insides. ARS' cooperators in the latest *Rogas* recruitment were India's Commonwealth Institute of Biocontrol and USDA's Foreign Agricultural Service. *Roger W. Fuester, USDA-ARS Beneficial Insects Introduction Research Laboratory, Newark, Delaware, phone (302) 731-7330; and Robert F.W. Schroder, USDA-ARS Insect Biocontrol Laboratory, Beltsville, Maryland, phone (301) 504-8369.*